

## THE ROLE OF TRICHOALGAE AS BIOPESTICIDE AND BIOFERTILIZER

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The role of organic fertilizer is in the addition of organic matter to the soil and serves as a source of plant nutrients, improving the soil porosity which improves the soil aeration and drainage, increasing the activity of soil microorganisms, improving the structure and texture of the soil, improving soil chemical and stabilizing soil aggregation. Besides maintaining soil fertility, it also has the properties to hold water longer and does not pollute the environment. Organisms that can be used as a biofertilizer include algae, while *Trichoderma pseudokoningii* were supposed to function as a biopesticide as well as a decomposer that will decompose algae into compost organic biofertilizer.

Some types of blue-green algae such as Cyanophyceae sp. has the ability to perform photosynthesis and nitrogen fixation and is advantageous to become the mainstay of this study and as a source of biological nitrogen derived from natural biological body that is renewable. On the other hand, *Trichoderma* sp is a natural decomposer that contains cellulase enzymes. The enzyme cellulose ( $\beta$ -glucosidase) and chitinase enzymes can work synergistically to accelerate the process of weathering organic matters. Moreover, *Trichoderma* sp. potentially can be used to control pests and diseases and are safe for the environment and improve plant resistance by the induction mechanism of phytoalexins production or increase plant resistance against the pathogen. The use of *Trichoderma* sp as decomposers of organic as well as biological control and algae as organic fertilizer, which we call TrichoAlgae, is expected to be effective and has the potential to turn the algae into organic fertilizer, as well as a biological control against the pathogen. Based on the results of an earlier research, by making innovation to a new formulation called TrichoAlgae organic fertilizers it is expected to obtain a product which is the synergy of the potential and advantages of algae as an organic fertilizer combined with *Trichoderma* as decomposers and potential biological control agent, which can later be expected to contribute effectively to enhance plant growth and simultaneously improve plant resistance against the pathogen attack.

TrichoAlgae Biofertilizer, Biopestisida, *Trichoderma*, Algae